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VOL. XXV.

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No. 2

THE EVIDENCE OF PLAGUE INFECTION AMONG GROUND SQUIRRELS.

By GEORGE W. MCCOY, Passed Assistant Surgeon, United States Public Health and Marine-Hospital Service.

The desirability of placing the diagnosis of plague infection among the ground squirrels of the Pacific coast upon as firm a foundation as possible is obvious. The presence among animals of a disease that may be transmitted to man, and especially when it has the epidemiological significance of the one we are discussing, is a matter of so much importance that every effort should be made to make the bacteriological work upon which the diagnosis is based so complete and careful that no flaw may be found. Executive authorities have a right to demand that prior to the inauguration of an extensive and costly campaign for the control or eradication of a disease all doubt as to its exact nature be removed.

After a considerable experience with both natural and experimental plague in ground squirrels, and having been called upon to make the clinical and bacteriological diagnosis in several cases of plague in persons who were probably infected from squirrels, it seemed that it might be of interest to show just what was the nature of the evidence upon which the diagnoses were based, omitting technical details.

The subject will be considered, first, in relation to ground squirrels, and, second, and somewhat less fully, in relation to human cases.

PLAGUE IN GROUND SQUIRRELS (*CITELLUS BEECHEYI*).

Gross lesions.—It is well known that in the majority of cases of plague in man and in laboratory animals there are certain well-defined and easily recognizable gross anatomical changes. These lesions are to a large extent specific, so much so that the experienced observer can usually make a safe and accurate diagnosis from the post-mortem findings alone in plague-infected human beings, rats, or guinea pigs. With these facts in mind, it will be readily understood that one would expect to find certain characteristic lesions in squirrels. At the federal laboratory our earliest experience in this line was with artificially inoculated squirrels. We found that plague in these animals was, as we expected it would be, uniformly manifested by certain well-marked gross lesions.

Not only did we inoculate ground squirrels with strains of the plague bacillus isolated in California from human beings, naturally infected rats, and naturally infected squirrels, but also with a culture that had been isolated originally in Asia. The object was to ascertain whether the reaction of the squirrels was the same to this foreign culture of the plague bacillus as it was to what might be spoken of as the domestic strains. The lesions were practically identical with those caused by the domestic strains.

This preliminary work with artificially infected animals was of the utmost value when we came to handle the large number of rodents that were sent in when the campaign was actively started against the squirrel during the summer of 1909. While the lesions in natural squirrel plague were by no means so uniform as they are in laboratory animals (rats and guinea pigs) or as they were in the artificially infected squirrels, still the disease is attended by definite lesions in every case. The possibility was always kept in mind that cases might occur in which no lesions were present and in which one would be compelled to rely upon the examination of stained smears to arouse suspicion. As a result of much work upon this point, I have come to the conclusion that the naked-eye examination alone will always afford one ample grounds upon which to base a probable diagnosis, and no case has come under observation in which infection was found in an animal that failed to present macroscopical evidence of the disease. In other words, we believe the disease in squirrels is practically always attended by certain marked gross anatomical changes, just as is true in the case of plague in other animals.

It is not my purpose to describe here in detail the lesions of squirrel plague, but it may be stated that they consist, in the majority of cases, of a bubo, often alone, but frequently associated with caseous or purulent lesions in the lungs, the liver, or the spleen, or occasionally in all of these organs. Our experience in the examination of squirrels has in some respects been most fortunate. About 2,000 squirrels were sent to the laboratory before the first naturally infected one was found. The examination of this large number of healthy animals gave the laboratory staff a thorough training in the appearance of the tissues and organs in the normal rodents and, having been trained in the appearance of induced plague in squirrels, prepared us to promptly recognize the gross lesions of the disease in naturally infected ones. I may state here, as a matter of general interest, that as compared with rats, squirrels present comparatively few pathological changes. Nephritis, tumors, abscesses, and certain other lesions that are fairly common in rats have been very rare in the squirrels we have examined. So much for the naked-eye appearances that aroused suspicion of a ground squirrel being plague infected. Let us now turn to evidence of a different and more convincing nature.

Bacteriological findings.—The first naturally infected squirrel found in America was sent to the Oakland laboratory of the service in the summer of 1908. It was examined there by Former Acting Asst. Surg. W. B. Wherry, who sent part of the tissue to the writer at the federal laboratory in San Francisco, the two laboratories conducting independent bacteriological examinations. This was in accordance with an order of Surg. Rupert Blue, commanding plague suppressive measures, who wished to have the diagnosis of every case of plague

in man or in rodents confirmed by at least two bacteriologists working independently. This plan was followed in the case of all squirrels that were proven plague infected in 1908. Several of the cases, both human and rodent, were also verified by Dr. W. H. Kellogg, representing the California State Board of Health. During the current year (1909), as the number of infected animals was very large, this checking of results was dispensed with. Doctor Wherry^a has published the results of the work in 1908, to which the reader is referred for a valuable discussion of squirrel plague. The report covers 4 infected squirrels from Contra Costa County and 1 from Los Angeles County.

When a squirrel is found that presents lesions which are regarded as suspicious of plague, stained smear preparations are made from the bubo or from other lesions and a search is made for organisms that correspond morphologically and tinctorially with the pest bacillus. In a considerable percentage of cases the examination of these smear preparations shows the presence of enormous numbers of organisms that are identical in appearance with *B. pestis* as we are acquainted with it from human and from rat cases of the disease. To the experienced observer the microscopical examination gives most valuable assistance and many times practically enables one to confirm a diagnosis. In other cases but few characteristic organisms are found, and in still others none at all are seen. In a large number of cases of natural squirrel plague the diagnosis has been made upon the gross lesions to which reference has been made in conjunction with the finding of large numbers of characteristic organisms in smears. However, it was made a rule, to which there were no exceptions, that no county was reported as furnishing plague squirrels until at least one squirrel from the county in question has been proven infected by animal inoculation. Indeed, with very few exceptions, at least one squirrel from each infected farm was thus verified. In other words, even the finding of what we regarded as characteristic lesions, and of typical bacilli in smears, was not regarded as sufficient to justify us in pronouncing the squirrels of a county infected until that evidence had been confirmed by the results of cultural investigations or animal inoculation. In this manner the diagnosis has been verified in about 150 squirrels, coming from 6 counties and covering an area of several thousand square miles.

The procedure in these cases was as follows: Tissue (usually bubo) from a squirrel that on account of gross pathological changes was regarded with suspicion, whether or not pest-like organisms were found in smears, was used for the purpose of inoculating one or more guinea pigs or white rats. In a few cases both guinea pigs and white rats were used. When the inoculated animals died, which was usually from about the fifth to the eighth day, a careful necropsy was made and a record showing exactly the lesions found was prepared and filed. As I have said before, the post-mortem appearances of plague in guinea pigs and in white rats are quite uniform and characteristic. When pathological changes were found that were regarded as those of plague in the inoculated guinea pigs or rats, the squirrel was reported as infected. In addition, cultures were made from the majority of the laboratory animals and the specific causative agent of the disease

^a Journal of Infectious Diseases, vol. 5, No. 5, Dec. 18, 1908, pp. 485-533.

was isolated and studied upon various artificial media. In a few cases *B. pestis* was isolated in culture directly from the tissues of the naturally infected squirrel without the use of a laboratory animal. The culture derived directly from a squirrel or from a laboratory animal was grown first upon ordinary agar. Upon this medium the growth of *B. pestis* is in the form of small grayish translucent colonies, which when touched with an inoculating needle have the peculiar property of being sticky, so that a long filament may be drawn out when the needle is withdrawn. Unless the culture has these properties there is but little use to pursue the investigation further. Transplants were made; to broth in which flocculi are formed and certain other characteristic appearances noted; to 3 per cent salt agar, where the remarkable alterations in shape spoken of as involution forms are produced; and upon litmus milk, which medium is not affected, or at most is rendered slightly less blue than the control sample. The reactions of the organism upon other media need not be discussed here. The properties mentioned belong only to the pest bacillus. Indeed, in spite of the large number of organisms that have from time to time been designated as "pseudo-pest" bacilli, there are no organisms which in cultural and pathogenic properties are likely to be mistaken for *B. pestis*.

In a number of cases these pure cultures were used for the purpose of reproducing the disease in laboratory animals, and from these animals the infecting organism was again recovered in culture.

This then is the direct evidence relating to plague in the squirrel, with the exception of what I shall have to say in regard to the relation to antipest serum of the plague bacillus isolated from squirrels.

HUMAN PLAGUE OF SQUIRREL ORIGIN.

I have had under observation two cases of plague in hunters in which the history pointed indisputably to contact with squirrels as the source of the infection. In each instance an infected squirrel was found in the vicinity where the man had been hunting; in one the infected squirrel had been found several months before the human case developed, and in the other case infected squirrels were found as a result of a search made after the human case had occurred. In each of these cases the time between the handling of squirrels and the onset of symptoms was well within the ordinary period of incubation of plague. I have seen another case (the Los Angeles case) in which there was a clear history of the patient having been bitten by a sick squirrel that he had picked up a few days before he became ill. In a fourth case there was no history of association with squirrels, but an infected squirrel was found upon the same farm about the same time that the human case developed.

Two other cases were not seen clinically, but the diagnosis was made from the tissues submitted for bacteriological examination. In these two latter cases there was no history of contact with squirrels, but subsequently plague-infected squirrels were found in the vicinity of the place at which the patients had lived. I do not believe that there is any reasonable doubt that all of these patients contracted the disease from ground squirrels. There was no history of any association between the different cases; in fact, they all occurred in widely separated localities and at different times. At the time when these cases occurred there was no known plague in the country,

excepting that among the ground squirrels. One of these cases almost fulfilled the conditions of an experiment. A young man (J. B.) who lived in Oakland, Cal., went squirrel shooting. He secured about a dozen of the rodents, which he brought home with him. Three days later he became ill, the illness following the usual course of plague, and the clinical diagnosis was confirmed by bacteriological methods. Several months prior to this we had had several plague-infected squirrels sent to the laboratory from the farm upon which the young man had shot his squirrels.

Each of the 4 cases that I saw personally presented the usual symptoms of plague, and the histories indicated that the other 2 cases followed the usual course of the disease. One of the cases^a followed the ordinary course of plague during the early part of the attack, but became subacute, the patient dying on the sixteenth day. In each of the 6 cases the bacteriological examination was carried out in very much the same way as has been described under the discussion of the bacteriological findings in squirrels, and from each one the plague bacillus was isolated.

The question as to just how these persons were infected can not be answered at the present time. There was a history of a squirrel bite in one case; in another, a history of an abrasion on the hand while skinning a squirrel. Whether these 2 persons were actually infected in these ways can not be definitely asserted. There was no clue in the other cases as to the mode of infection. An interesting point is the fact that in each of these 6 cases the primary bubo was situated in the axillary region. Three of the 6 patients died and 3 recovered, making the mortality 50 per cent, which is just about the mortality for plague among Europeans in general and is approximately the mortality in the recent (1907-8) San Francisco epidemic, where the infection was presumably derived from rats.

The final criterion in the diagnosis of plague is the isolation of the specific microorganism that causes the disease, and, as I have said, this has been accomplished in all of the human cases and in a large number of the squirrel cases. There is no practicable application of the agglutination reaction to the diagnosis of plague. We have carried out some experiments upon animals with the object of determining the practicability of the use of an ophthalmic or a cutaneous reaction, but the results have not been encouraging. In conjunction with former Acting Asst. Surg. L. L. Schmitt we are at present working upon the application of the reaction of complement deviation, as applied to the diagnosis of plague, but we are not yet prepared to make any statement upon the subject.

RELATION TO ANTIPEST SERUM.

There remains one subject bearing upon the identification of a given organism as *B. pestis* that will be briefly treated. I refer to the protective power of antipest serum. Just how much weight should be given to evidence of this sort is too large a subject to be discussed here. It is evident that the results will depend in a measure upon the dose and the potency of the serum and the virulence of the organism under investigation. It may be assumed for our present purpose

^a Journal of Infectious Diseases, vol. 6, No. 5, Nov. 26, 1909, pp. 670-675.

that if a serum protects against an organism, that organism is of the same species as the one used to provoke the production of specific antibodies in the serum. The results of all of the serum tests of the cultures of *B. pestis* isolated from squirrels and persons believed to have been infected from squirrels is set forth here.

Source of culture.	Test animal.	Dose of serum.	Day of death.	Lesions.	Day killed.	Lesions.
Squirrel 1.....	Guinea pig..	5 c. c. antipest..			(a)	
Do.....	do.....	5 c. c. diphtheria (control).	Fourth.....	Acute plague..		
Do.....	do.....	None (control)..	do.....	do.....		
Do.....	Wild rat (Mus norvegicus).	5 c. c. antipest..			Eighth.....	None.
Do.....	do.....	do.....			do.....	Do.
Do.....	do.....	None (control)..	Fourth.....	Acute plague..		
Do.....	do.....	do.....	do.....	do.....		
Squirrel A.....	Guinea pig..	3 c. c. antipest..	Eleventh.....	Chronic plague.		
Do.....	do.....	None (control)..	Fifth.....	Acute plague..		
Los Angeles squirrel.	Wild rat (Mus norvegicus).	5 c. c. antipest..			Fourth.....	Do.
Do.....	do.....	do.....			do.....	Do.
Do.....	do.....	None (control)..	Third.....	Acute plague..		
Do.....	do.....	do.....	Fourth.....	do.....		
Human (J. B.)...	White rat..	2 c. c. antipest..			Fourteenth.	Do.
Do.....	do.....	None (control)..	Third.....	Acute plague..		
Squirrel 383.....	do.....	2 c. c. antipest..			do.....	Abscess at site.
Do.....	do.....	None (control)..	Fourth.....	Acute plague..		
Squirrel 391.....	Guinea pig..	2 c. c. antipest..			Fifteenth.....	Purulent bubo.
Do.....	do.....	None (control)..	Seventh.....	Subacute plague.		
Do.....	White rat..	2 c. c. antipest..			Fourteenth.	None.
Do.....	do.....	None (control)..	Third.....	Acute plague..		

a Alive and well tenth day.

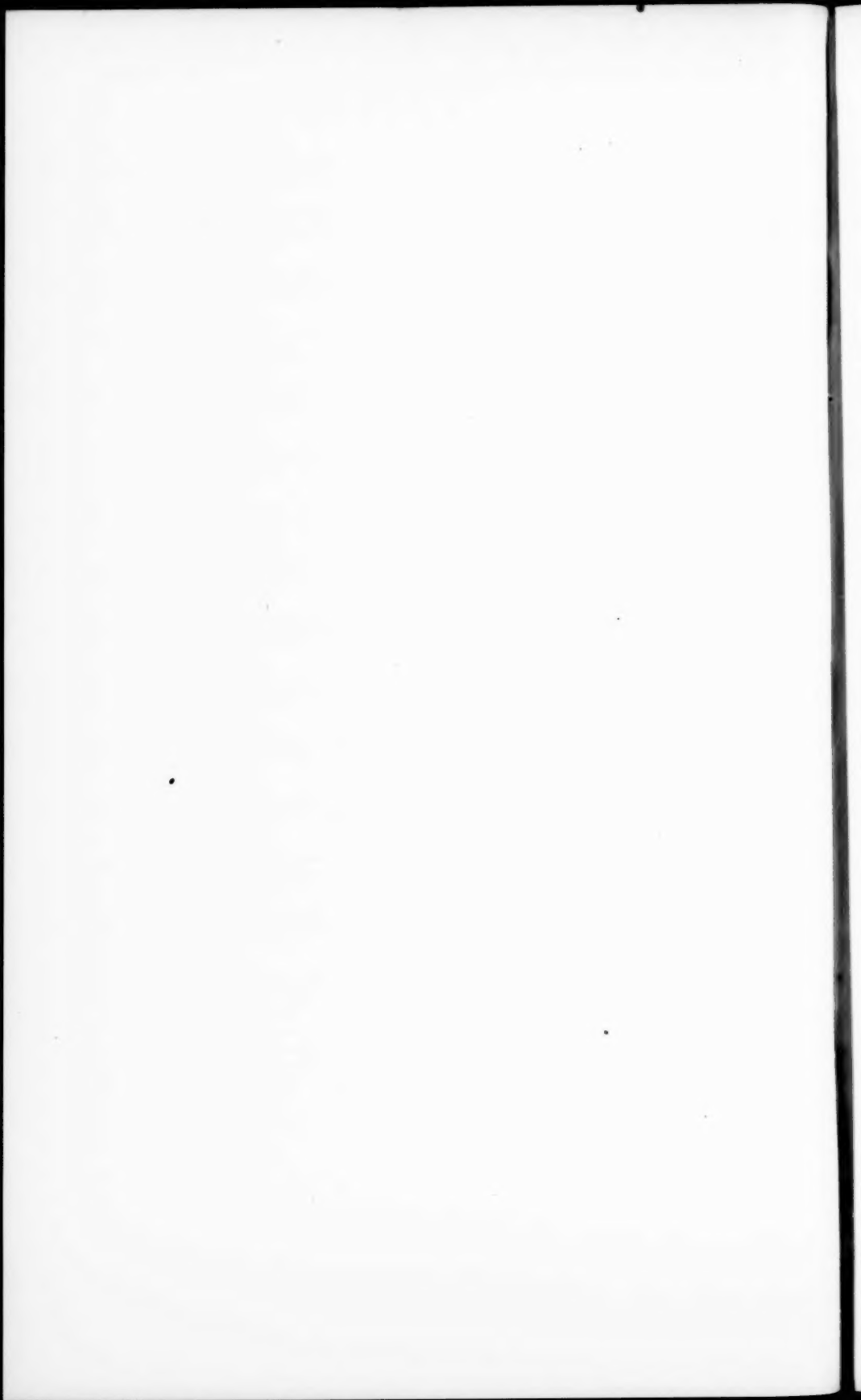
In each instance the "protected" and the "control" animals were of approximately the same weight, and were inoculated with the same culture, in the same dose and in the same manner (cutaneous or subcutaneous).

As will be seen by a glance at the table, the antipest serum exerted a very high degree of protective power, usually saving the life of the "protected" animal.

General considerations.—As to the significance of plague among the squirrels of the Pacific coast, the subject is one about which only the most guarded opinion may be expressed, as our knowledge of the matter is very limited. It is my personal opinion that the number of human beings to be directly infected from squirrels will never constitute a large element in the mortality and the morbidity of the infected section. With the knowledge that the disease exists among the rodents, appropriate measures will reduce the risk of its spread to a minimum and enable municipalities to protect themselves against an infection of their rats from squirrels.

In conclusion I may say that the question has frequently been asked by honest and friendly critics as to whether the disease among squirrels was due to the same organism that caused plague among rats and among people. This question may safely be answered in the affirmative, and I would call especial attention to the following points:

1. The gross lesions in any case of squirrel plague are analogous to those seen in man and in rodents (rats and guinea pigs).
2. The lesions caused by a foreign (Asiatic) and a domestic (squirrel) strain of *B. pestis* are practically identical.
3. An organism has been isolated from the human and from the squirrel cases that is not to be distinguished by cultural or other methods from foreign strains of *B. pestis*.
4. Antipest serum (made in Paris) protects against the strains of *B. pestis* found in the human and squirrel cases discussed here.
5. Several cases of typical plague in human beings, the diagnosis of which have been verified by bacteriological methods, have been traced to squirrel infection as clearly as one can trace such things.



UNITED STATES.

REPORTS TO THE SURGEON-GENERAL, PUBLIC HEALTH AND MARINE-HOSPITAL SERVICE.

PLAGUE-PREVENTION WORK.

Surgeon Blue reports:

SAN FRANCISCO, CAL.

Last case of human plague sickened January 30, 1908. Last plague-infected rat was trapped October 23, 1908. Total number of plague-infected rats found to date, 398.

Week ended December 25, 1909. Premises inspected, 795. Houses destroyed, 11. Nuisances abated, 134. Poisons placed, 6,050. Rats trapped, 1,373. Rats found dead, 20. Rats identified, 1,393 as follows: *Mus norvegicus*, 961; *Mus rattus*, 48; *Mus musculus*, 354; *Mus alexandrinus*, 30. Rats examined bacteriologically, 1,122. No plague-infected rats were found.

OAKLAND, CAL.

Last case of human plague sickened October 26, 1909. Last plague-infected rodent was found December 1, 1908.

Week ended December 25, 1909. Rats found dead, 11. Rats trapped, 522. Rats identified, 533, as follows: *Mus norvegicus*, 479; *Mus rattus*, 2; *Mus musculus*, 51; *Mus alexandrinus*, 1. Rats examined bacteriologically, 476. No plague-infected rat was found.

CONTRA COSTA COUNTY, CAL.

Last case of human plague sickened July 21, 1908. Last plague-infected rodent was found September 28, 1909. Total number of ground squirrels found infected to date, 240.

Week ended December 25, 1909. Sick inspected, 3. Ranches inspected, 3. Ground squirrels shot, 29. Ground squirrels trapped alive, 1. Ground squirrels examined bacteriologically, 26. No plague-infected squirrels found.

FRESNO COUNTY, CAL.

There is no record of human or rodent plague in Fresno County.

Week ended December 25, 1909. Ranches inspected, 5. Ground squirrels shot, 140. Ground squirrels examined bacteriologically, 138. No plague-infected squirrels found.

KERN COUNTY, CAL.

There is no record of human or rodent plague in Kern County.

Week ended December 25, 1909. Ranches inspected, 6. Ground squirrels shot, 23. Ground squirrels examined bacteriologically, 23. No plague-infected squirrels found.

MARIPOSA COUNTY, CAL.

There is no record of human or rodent plague in Mariposa County, Cal.

Week ended December 25, 1909. Ranches inspected, 2. Ground squirrels shot, 65. Ground squirrels examined bacteriologically, 64. No plague-infected squirrels found.

MERCED COUNTY, CAL.

There is no record of human or rodent plague in Merced County.

Week ended December 25, 1909. Ranches inspected, 20. Ground squirrels shot, 210. Ground squirrels examined bacteriologically, 208. No plague-infected squirrels found.

MONTEREY COUNTY, CAL.

There is no record of human or rodent plague in Monterey County, Cal.

Week ended December 25, 1909. Ranches inspected, 19. Ground squirrels shot, 113. Ground squirrels trapped alive, 1. Ground squirrels examined bacteriologically, 113. No plague-infected squirrels found.

SAN JOAQUIN COUNTY, CAL.

There is no record of human or rodent plague in San Joaquin County.

Week ended December 25, 1909. Ranches inspected, 10. Ground squirrels shot, 44. Ground squirrels examined bacteriologically, 43. No plague-infected squirrels found.

SAN LUIS OBISPO COUNTY, CAL.

There is no record of human or rodent plague in San Luis Obispo County.

Week ended December 25, 1909. Ranches inspected, 22. Ground squirrels shot, 102. Ground squirrels examined bacteriologically, 102. No plague-infected squirrels found.

SAN MATEO COUNTY, CAL.

There is no record of human or rodent plague in San Mateo County.

Week ended December 25, 1909. Ranches inspected, 8. Ground squirrels shot, 58. Ground squirrels examined bacteriologically, 58. No plague-infected squirrels found.

SANTA BARBARA COUNTY, CAL.

There is no record of human or rodent plague in Santa Barbara County.

Week ended December 25, 1909. Ranches inspected, 10. Ground squirrels shot, 37. Ground squirrels examined bacteriologically, 37. No plague-infected squirrels found.

SANTA CRUZ COUNTY, CAL.

There is no record of human plague in Santa Cruz County. Last plague-infected rodent was found November 6, 1909. Total number of plague-infected rodents found to date, 1.

Week ended December 25, 1909. Ranches inspected, 14. Ground squirrels shot, 36. Ground squirrels examined bacteriologically, 36. No plague-infected squirrels found.

TULARE COUNTY, CAL.

No record of human or rodent plague in Tulare County.

Week ended December 25, 1909. Ranches inspected, 7. Ground squirrels shot, 127. Ground squirrels examined bacteriologically, 127. No plague-infected squirrels found.

VENTURA COUNTY, CAL.

There is no record of human or rodent plague in Ventura County.

Week ended December 25, 1909. Ranches inspected, 7. Ground squirrels shot, 17. Ground squirrels trapped alive, 2. Ground squirrels examined bacteriologically, 17. No plague-infected squirrels found.

Passed Assistant Surgeon Glover reports:

SEATTLE, WASH.

No case of human plague since October 30, 1907. The last plague-infected rat was found September 26, 1908. Total plague-infected rats found to date, 21.

Week ended December 25, 1909. Rats received, 874. Rats necropsied, 777. No plague-infected rats found.

SMALLPOX IN THE UNITED STATES.

Reports Received During Week Ended January 14, 1910.

Place.	Date.	Cases.	Deaths.	Remarks.
Alabama:				
Montgomery.....	Dec. 26-31.....	21		
California:				
San Francisco.....	Dec. 19-25.....	4		
Colorado:				
Boulder.....	Dec. 19-25.....	1		
Fruita District.....	Dec. 26-Jan. 1.....	3		
District of Columbia.....	Dec. 19-Jan. 1.....	1		
Indiana:				
Flora.....	Dec. 1-31.....	3		
South Bend.....	Dec. 26-Jan. 1.....	1		
Iowa:				
Cedar Rapids.....	Dec. 1-31.....	7		
Sioux City.....	Dec. 1-31.....	2		
Kansas:				
Independence.....	Dec. 26-Jan. 1.....	12		
Kansas City.....	Dec. 19-25.....	1		
Louisiana:				
New Orleans.....	Dec. 26-Jan. 1.....	6		
Maryland:				
Baltimore.....	Dec. 26-Jan. 1.....	1		
Michigan:				
Alcona County.....	Nov. 1-30.....	12		
Antrim County.....	Nov. 1-30.....	11		
Arenac County.....	Nov. 1-30.....	66		
Bay County.....	Nov. 1-30.....	4		
Emmet County.....	Nov. 1-30.....	2		
Genesee County.....	Nov. 1-30.....	60		
Gladwin County.....	Nov. 1-30.....	1		
Gratiot County.....	Nov. 1-30.....	1		
Houghton County.....	Nov. 1-30.....	11		
Ionia County.....	Nov. 1-30.....	23		
Lapeer County.....	Nov. 1-30.....	2		
Livingston County.....	Nov. 1-30.....	7		
Marquette County.....	Nov. 1-30.....	1		
Mason County.....	Nov. 1-30.....	1		
Montcalm County.....	Nov. 1-30.....	3		
Ontonagon County.....	Nov. 1-30.....	2		
Sanilac County.....	Nov. 1-30.....	2		
Wayne County—				
Detroit.....	Dec. 26-Jan. 1.....	1		
Minnesota:				
Duluth.....	Dec. 26-Jan. 1.....	2		
Mississippi:				
Natchez.....	Dec. 26-Jan. 1.....	7		
Missouri:				
St. Louis.....	Dec. 26-Jan. 1.....	1		
Montana:				
Dawson County.....	Nov. 1-30.....	1		
Flathead County.....	Oct. 1-Nov. 30.....	6		
Jefferson County.....	Nov. 1-30.....	1		
Lewis and Clark County.....	Oct. 1-Nov. 30.....	3		
Missoula County.....	Oct. 1-Nov. 30.....	22		
Park County.....	Nov. 1-30.....	1		
Powell County.....	Nov. 1-30.....	1		
Ravalli County.....	Nov. 1-30.....	2		
Silver Bow County.....	Oct. 1-Nov. 30.....	15		
Butte.....	Dec. 19-31.....	14		
North Carolina:				
Guilford County—				
Greensboro.....	Dec. 26-Jan. 1.....	1		
Mecklenburg County—				
Charlotte.....	Dec. 26-Jan. 1.....	6		
Tennessee:				
Chattanooga.....	Dec. 26-Jan. 1.....	2		
De Kalb County.....	Dec. 19-25.....	2		
Memphis.....	Nov. 1-30.....	20		
Washington County.....	Dec. 26-Jan. 1.....	7		
Texas:				
Bexar County—				
San Antonio.....	Dec. 5-11.....	2		
Denton County.....	Dec. 26-Jan. 1.....	9	1	Type of disease more malignant than for some years.
El Paso.....	Dec. 26-Jan. 1.....	2		
Washington:				
Spokane.....	Dec. 19-25.....	1		
Wisconsin:				
La Crosse.....	Dec. 26-Jan. 1.....	1		
Milwaukee.....	Dec. 19-Jan. 1.....	2		
Superior.....	Dec. 26-Jan. 1.....	5		

SMALLPOX IN UNITED STATES—Continued.

Reports Received from January 1 to January 7, 1910.

[For reports received from June 25, 1909, to December 31, 1909, see PUBLIC HEALTH REPORTS for December 31, 1909. In accordance with custom the tables of epidemic diseases are terminated semiannually and new tables begun.]

Place.	Date.	Cases.	Deaths.	Remarks.
Alabama:				
Montgomery.....	Dec. 19-25.....	26		
Total for State.....		26		
California:				
Sacramento.....	Dec. 12-18.....	2		
Total for State.....		2		
Illinois:				
Chicago.....	Dec. 19-25.....	2		
Total for State.....		2		
Indiana:				
Indianapolis.....	Dec. 12-18.....	1		
Total for State.....		1		
Kansas:				
Montgomery County— Independence.....	Dec. 19-25.....	5		
Wyandotte County— Kansas City.....	Dec. 19-25.....	1		
Total for State.....		6		
Kentucky:				
Hartford.....	Dec. 12-18.....	2		
Lexington.....	Dec. 12-18.....	1		
Total for State.....		3		
Michigan:				
Bay County— Bay City.....	Dec. 5-11.....	15		
Total for State.....		15		
Mississippi:				
Calhoun County— Port Gibson.....	Dec. 19-25.....	1		
Total for State.....		1		
New York, general.....	Sept. 1-Oct. 31.....	6	1	
Lockport.....	Dec. 5-11.....	1		
Total for State.....		7	1	
North Carolina:				
Charlotte.....	Dec. 19-25.....	1		
Total for State.....		1		
North Dakota:				
Bottineau County.....	Oct. 1-31.....	1		
Total for State.....		1		
Ohio:				
Cleveland.....	Dec. 19-26.....	1		
Stryker.....	Dec. 19-25.....	1		
Total for State.....		2		
Tennessee:				
Dekalb County.....	Dec. 12-18.....	5		
Total for State.....		5		
Texas:				
El Paso.....	Nov. 1-30.....	1		
Fort Worth.....	Nov. 1-30.....	2		
Total for State.....		3		

SMALLPOX IN UNITED STATES—Continued.

Reports Received from January 1 to January 7, 1910.

Place.	Date.	Cases.	Deaths.	Remarks.
Wisconsin:				
La Crosse.....	Dec. 19-26.....	1		
Superior.....	Dec. 19-25.....	1		
Total for State.....		2		
Grand total for the United States.....		77	1	

MORBIDITY AND MORTALITY.

WEEKLY MORBIDITY AND MORTALITY TABLE, CITIES OF THE UNITED STATES.

[For smallpox see special table.]

Cities.	Week ended—	Estimated population, 1909.	Total deaths from all causes.	Cases and deaths.											
				Tuber- culosis.		Typhoid fever.		Scarlet fever.		Diph- theria.		Measles.		Whoop- ing cough.	
				Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Altoona, Pa.	Jan. 1	30,814	11							2		3			
Ann Arbor, Mich.	Dec. 25	14,711	8	2											
Do.	Jan. 1						1					1			
Baltimore, Md.	do.	576,023		7	32	15		11	1	14	1	8		14	
Bath, Me.	Dec. 25	12,055													
Do.	Jan. 1									1	1				
Bayonne, N. J.	do.	49,894						4		5					
Beaver Falls, Pa.	do.	10,341	1	1								17			
Berkeley, Cal.	Dec. 18	19,700		1	1	1		1						4	
Biddeford, Me.	Dec. 31	17,676	4												1
Binghamton, N. Y.	Dec. 25	45,855	13		2					2	1	12			
Birmingham, Ala.	do.	49,553	18	2	1	1		3							
Do.	Jan. 1		30	2	2	2				7					
Boston, Mass.	Dec. 25	622,970	228	68	18	10	1	53	1	102	8	52	1	6	
Do.	Jan. 1		261	42	26	8	1	36	1	73	7	78	1	5	
Bradford, Pa.	Dec. 25	17,349	5							1					
Do.	Dec. 31		6		1							2			
Bridgeport, Conn.	Dec. 25	90,913	23	3	5			17	1	4					
Brockton, Mass.	do.	53,978	17	4	3	1		2	1	2		1			
Do.	Jan. 1		19	2	2	1	3	3		1					
Butte, Mont.	Dec. 25	49,892	14		5			4		1					
Do.	Jan. 1		11					1							
Cambridge, Mass.	Dec. 25	101,872	32	4	3	1		6		13				2	
Do.	Jan. 1		42	4	10	1	5			5				2	
Cambridge, Ohio.	do.	11,733	1												
Camden, N. J.	do.	89,305	29	1	6					11					
Canton, Ohio.	Dec. 25	40,037	5					2		2					
Carbondale, Pa.	Dec. 25	15,698	6			1				1	1	17			
Do.	Jan. 1		1					1				30			
Charlotte, N. C.	Dec. 25	35,101	9			2		1				11			
Do.	Jan. 1		6	1	1					1		3			
Chattanooga, Tenn.	Dec. 25	34,654		1						3					
Do.	Jan. 1									1					
Chelsea, Mass.	do.	39,862	11	1			1	4		2		6			
Chicopee, Mass.	Dec. 25	20,010	6	1		1									
Do.	Jan. 1		8	2	1			2				1			
Chicago, Ill.	do.	2,224,491	659	94	83	13	2	144	5	130	16	121	6	40	4
Cincinnati, Ohio.	Dec. 25	351,212		11	10	2	1	3		8	2	10			
Clinton, Mass.	do.	12,656	1	3											
Cleveland, Ohio.	Dec. 26	506,938	151	18	7	10	2	15	1	29	1	87		8	
Do.	Dec. 31		151	27	19	10	1	11	1	20	4	73	3	3	
Clinton, Mass.	Jan. 1	12,656	1	1								1			
Coffeyville, Kans.	Dec. 25		6	3	2					1	1				
Columbus, Ga.	do.	17,893													
Columbus, Ohio.	do.	155,340	50	9	7	1		9		5	1	48		1	

• Estimated population 1906. No estimate 1909.

MORBIDITY AND MORTALITY—Continued.

Weekly morbidity and mortality table, cities of the United States.

Cities.	Week ended—	Estimated population, 1909.	Total deaths from all causes.	Cases and deaths.											
				Tuber- culosis.		Typhoid fever.		Scarlet fever.		Diph- theria.		Measles.		Whoop- ing cough.	
				Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Columbus, Ohio.....	Jan. 1		49	6	5		1	11		1		26	5	1	
Concord, N. H.....	Dec. 18	21,997	6							6		5			
Do.....	Dec. 25		10	1	1	2				1		4			
Do.....	Jan. 1		6							4		7			
Covington, Ky.....	do.	51,715	21			1		1		1	1				
Danville, Ill.....	Dec. 31	27,387		1	1			1				1		1	
Dayton, Ohio.....	Dec. 25	108,688	28		2			4				3			
Detroit, Mich.....	Jan. 1	384,855	147					38	2	26	2				
Duluth, Minn.....	Dec. 25	74,520	21	1	2	2	2	4		3		3			
Do.....	Jan. 1		25		2	1		9	1	4					
Dunkirk, N. Y.....	do.	18,061	4	1											
Elkhart, Ind.....	Dec. 25	18,650	4	1		1									
Elmira, N. Y.....	do.	35,765	11							2		2			
El Paso, Tex.....	do.	22,911	10	7	3					1					
Evansville, Ind.....	do.	66,948	13	1	1					2		8			
Do.....	Dec. 1		26					4	1	2		1			
Erie, Pa.....	Dec. 25	63,652	7	7		1		23				1			
Everett, Mass.....	do.	32,931	9		1			1		1					
Do.....	Jan. 1		14					6	1	1					
Everett, Wash.....	Dec. 25		1					2							
Fall River, Mass.....	do.	106,481	34	5	3	2	2	3		1	1				
Do.....	Jan. 1		33	2	3	5		1		1					
Freeport, Ill.....	Dec. 25	19,200	7	2	1	2		1		50					
Do.....	Jan. 1		2			1		1				25			
Galesburg, Ill.....	Dec. 25	21,615	3					1							
Do.....	Jan. 1		4					1							
Galveston, Tex.....	do.	36,964	1	2	1	1									
Gloucester, Mass.....	Dec. 25	25,923	6												
Do.....	Jan. 1		4												
Grand Rapids, Mich.....	Dec. 25	105,909	33	5	1	3	2	23	2	1	1	3		2	
Do.....	Jan. 1		32	1	4	3		26	2	1		3			
Greensboro, N. C.....	do.	16,081	9		2	2				1					
Hartford, Conn.....	Dec. 25	103,808	37	3	4			3		9	1	1		1	
Homestead, Pa.....	Dec. 14	17,145	9	1	1			4						2	
Do.....	Dec. 21		5					4	1						
Do.....	Dec. 28		11	1								1		1	
Houston, Tex.....	Dec. 25	63,625	25		1			1		4	1				
Hyde Park, Mass.....	Jan. 1	15,522	2					3				1			
Independence, Kans.....	Dec. 25		1	1						1					
Independence, Kans.....	Jan. 1		1												
Indianapolis Ind.....	Dec. 25	241,826	70	11	12	1	1	6		13		99			
Do.....	Jan. 1		80	12	5	2	1	9		12	1	160	2		
Jacksonville, Fla.....	Dec. 25	40,798	26		2			3		2					
Jersey City, N. J.....	Dec. 26	253,711	84	1	8			20	1	10		8			1
Johnstown, Pa.....	Jan. 1	46,520	23		2	1		1	5	2	28				
Kalamazoo, Mich.....	Dec. 25	36,504	16	2	1	1	1	4		1		2			
Kearny, N. J.....	do.	15,765	3	1	1	1		2		1		7		3	
Do.....	Jan. 1		4	1	1										
Kingston, N. Y.....	Dec. 25	26,110	9		2	2		1		8					
Do.....	Jan. 1		7												
Knoxville, Tenn.....	Dec. 25	37,758	11		2		1								
Kalamazoo, Mich.....	Dec. 18	36,504	13		1	1		4	1	1	1	1		1	
Do.....	Jan. 1		17	2		3		7	1	2		6			
Kansas City, Kans.....	Dec. 25	85,742	27	1	2	13	4	1	1	6	1				
Lexington, Ky.....	do.	30,690	10	2	2					2		2			
La Crosse, Wis.....	Jan. 1	29,224	5		2			1		3					
Do.....	Dec. 25		1					2							
La Fayette, Ind.....	do.	19,801	5												
Do.....	Jan. 1		4												
Lancaster, Pa.....	do.	49,962	12	1	1	2	1	3		4		25			
Lawrence, Mass.....	Dec. 25	76,042	34		4	1		4		1	1	5	1		1
Lebanon, Pa.....	Jan. 1	20,295	7					2						1	
Lexington, Ky.....	do.	30,690	16		2										
Lockport, N. Y.....	Dec. 11	18,105	6			1		2		5		1		1	
Do.....	Dec. 18		5	1	1			2		2					
Do.....	Dec. 25		7		1	2		3		3					
Los Angeles, Cal.....	do.	* 103,000	82	18	13	2	2	9		5		39			
Lowell, Mass.....	Jan. 1	95,125	56	5	4	2	1	1		8	3	26			

* Population 1900. No estimate.

MORBIDITY AND MORTALITY—Continued.

Weekly morbidity and mortality table, cities of the United States.

Cities.	Week ended—	Estimated population, 1909.	Total deaths from all causes.	Cases and deaths.											
				Tuber- culosis.		Typhoid fever.		Scarlet fever.		Diph- theria.		Measles.		Whoop- ing cough.	
				Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Lynn, Mass.	Dec. 25	29,457	19					6	2	7	1	1			
Malden, Mass.	do	41,535	10	1	1			1							
Manchester, N. H.	Jan. 1	68,561	28	3	3	1	1	4		7	1	31			
Do.	Dec. 25		20					1		5		15			
Manchester, Va.	do.	10,137	5		1										
Do.	Jan. 1		3							1					
Manistee, Mich.	Dec. 27	10,788						1							
Do.	Jan. 1														
Manitowoc, Wis.	Dec. 25	13,490	3					7		1					
Do.	Jan. 1							1							
Marinette, Wis.	do.	14,682	6	1	1			7		2					
Marion, Ind.	Dec. 25	26,950	3												
Marlboro, Mass.	do.	14,444	6								1				
Do.	Jan. 1		6	1				1		1					
Massillon, Ohio.	Dec. 25	13,610	4							1	1				
Do.	Jan. 1		9		1					1					
Medford, Mass.	do.	20,839	8					1		1					
Melrose, Mass.	Dec. 25	15,361	5	2				1				2			
Milwaukee, Wis.	do.	332,495	97	11	4	13		51	2	13	1	5		8	1
Mobile, Ala.	Dec. 18	45,122	16		3										
Do.	Dec. 25		18		4				3	2					
Moline, Ill.	do.	23,081	8					2							
Do.	Jan. 1		8		1										
Montclair, N. J.	Dec. 25	18,296	5			1		2		1		2		2	
Do.	Jan. 1		9		1	1	1	4				3			
Montgomery, Ala.	Dec. 25	43,927	19		1	1				6					
Do.	Jan. 1		16	3	2			1		2					
Morristown, N. J.	Dec. 25	12,849	3	2		1		1		2					
Mount Vernon, N. Y.	Jan. 1	27,891	7	1		1		1		1				1	
Muncie, Ind.	Dec. 31	30,266	17	2	1	1		1							
Nashville, Tenn.	Jan. 1	106,476	40	2	5	1	1	2		1					
Natchez, Miss.	do.	14,408	2												
Nebraska City, Nebr.	Dec. 25		1			2								3	
Do.	Jan. 1		1			1								8	
Newark, N. J.	Dec. 31	308,669		16	17	2		51	4	45	3		4		1
New Bedford, Mass.	Dec. 27	83,898				2		5		1		7			
Do.	Jan. 1		21	3	1	1		6		1		8		1	
Newburyport, Mass.	do.	14,832	6	1	3										
New Orleans, La.	Dec. 25	327,662	136	12	16	9	1	8		14	1	5			
Do.	Jan. 1		159	13	12	13	3	15		14	1	24			
New York, N. Y.	do.	4,450,963	1,562	382	150	19	9	369	28	280	43	507	15	17	5
Norristown, Pa.	do.	24,491	7					8		1	1				
North Adams, Mass.	do.	20,510	4	2											
Northampton, Mass.	do.	21,008	7					1							
Nanticoke, Pa.	Jan. 2	13,890	3	2	1	14		2		1					
Niagara Falls, N. Y.	Jan. 1	32,012	12	2	7	1		49	1	33	4		8	1	
Newark, N. J.	Dec. 24	308,669	77	10	7	1		41		1					
Newport, Ky.	Dec. 31	31,345	7							1					
Orange, N. J.	Jan. 1	27,669	7	1	1	1		6				2			
Ottumwa, Iowa.	Dec. 25	21,648	8												
Palmer, Mass.	Jan. 1		4							1	1	2	1	6	
Peekskill, N. Y.	do.	15,473	14	2	1			2							
Philadelphia, Pa.	do.	1,491,082	58	52	27	3	46	9	80	16	18		12		
Pittsburg, Pa.	Dec. 25	558,123	196	12	8	13	2	29	2	16	1	153	5	5	
Pittsfield, Mass.	Jan. 1	27,589	19		1	1				3					
Plainfield, N. J.	do.	20,947			1	2		1		4					
Plymouth, Pa.	Dec. 25	17,524		1				1				9			
Pontiac, Mich.	Dec. 18	12,819	8	14	1	4				4					
Do.	Dec. 25		7	15	1					4					
Do.	Jan. 1		6	14	1	5		1							
Portland, Me.	Dec. 18	57,675	22		2	1	1	1		4		2			
Do.	Dec. 25		19		1	1				5	2	2			
Do.	Jan. 1		12					1		1					
Portsmouth, Va.	Dec. 28	19,225	19					1							
Providence, R. I.	Jan. 1	217,065	89	3	6	2	1	9		16	4	33	2		
Racine, Wis.	Dec. 18	34,840	14		1					2					
Do.	Dec. 25		11		2					1	1		1		
Do.	Dec. 31		12		1		1	1							
Reading, Pa.	do.	97,231	36	1	1	1	2	2		4		22		5	
Sacramento, Cal.	Dec. 25	31,889	22		4	2						6			

MORBIDITY AND MORTALITY—Continued.

Weekly morbidity and mortality table, cities of the United States.

Cities.	Week ended—	Estimated population, 1909.	Total deaths from all causes.	Cases and deaths.											
				Tuberculosis.		Typhoid fever.		Scarlet fever.		Diphtheria.		Measles.		Whooping cough.	
				Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
St. Louis, Mo.	Dec. 25	686,369	200	36	19	11	3	38	3	20	1	14	...	23	...
San Francisco, Cal.	do	a 342,782	136	22	15	5	3	12	...	9	1	4	...	6	1
San Jose, Cal.	do	24,596	6	...	2	...	...	...	...	...	...	...	...	...	...
Saratoga Springs, N. Y.	do	13,471	7	...	...	...	...	...	...	1	...	...	...	...	...
Schenectady, N. Y.	do	73,037	18	4	5	...	...	1	...	5	...	50	1	7	...
Seattle, Wash.	do	a 104,169	35	1	1	1	...	9	...	6	...	12	...	...	...
Somerville, Mass.	Jan. 1	75,375	27	2	...	2	1	5	...	7	...	6	...	...	1
South Bethlehem, Pa.	Dec. 31	15,886	8	...	1	...	...	1	...	2	...	...	...	...	...
South Bend, Ind.	Dec. 25	49,321	13	5	5	...	...	1	...	...	...	...	...	...	...
Do	Jan. 1	...	10	5	1	1	...	9	...	2	...	...	...	...	...
Spokane, Wash.	Dec. 25	a 47,006	18	...	1	...	...	8	...	...	...	10	...	...	...
Springfield, Mass.	do	82,724	26	...	5	...	...	2	...	2	...	...	...	...	...
Do	Jan. 1	...	26	1	...	...	1	5	2	11	1	4	...	...	...
Springfield, Ohio	Dec. 25	43,975	14	1	1	...	...	1	...	5	4	...	...	...	...
Do	Jan. 1	...	10	4	3	...	...	5	...	5	...	...	...	...	...
Steelton, Pa.	Jan. 1	14,769	2	...	...	...	...	1	...	7	1	13	...	...	...
Superior, Wis.	Dec. 25	40,919	12	...	...	...	...	1	1	1	...	...	...	...	...
Tacoma, Wash.	do	a 37,714	19	1	3	2	3	10	...	1	...	...	...	...	...
Taunton, Mass.	do	30,926	12	1	1	1	...	1	...	1	...	...	...	...	...
Do	Jan. 1	...	22	...	1	1	...	...	...	...	...	8	...	...	...
Trenton, N. J.	Dec. 25	92,878	8	6	6	1	1	11	...	6	1	...	...	...	...
Vincennes, Ind.	Dec. 18	11,979	2	...	1	...	...	...	...	...	...	...	...	...	...
Do	Dec. 25	...	8	...	...	...	...	...	...	5	2	...	...	...	...
Waltham, Mass.	Jan. 1	28,522	9	1	...	1	1	...	...	10	...	...	...	...	...
Warren, Pa.	Dec. 20	11,838	...	...	...	...	...	...	...	...	...	...	...	3	...
Do	Dec. 27	...	7	1	...	...	...	...	...	...	...	1	...	3	...
Washington, D. C.	Dec. 25	322,212	143	24	13	7	1	58	...	12	1	6	...	4	...
Do	Jan. 1	...	13	17	7	...	...	41	1	6	3	2	...	9	...
Williamsport, Pa.	Dec. 25	30,220	14	...	2	...	...	2	1	...	...	2	...	...	...
Do	Jan. 1	...	9	...	...	1	1	4	...	1	...	...	...	...	...
Wichita, Kans.	Dec. 25	39,612	12	...	...	...	...	1	...	...	...	...	...	...	...
Wilmington, Del.	Jan. 1	89,896	27	...	4	...	1	...	2	...	...	...	...	...	...
Wilkes-Barre, Pa.	Dec. 25	64,323	22	5	4	...	...	2	...	5	1	4	...	7	1
Do	Jan. 1	...	19	3	2	...	...	2	...	3	...	3	...	5	...
West Newton, Mass.	Dec. 25	39,419	9	...	1	...	...	4	...	...	...	...	...	...	...
Weymouth, Mass.	Jan. 1	11,793	3	...	...	...	...	...	...	1	...	...	...	...	...
Wilkinsburg, Pa.	do	19,999	6	1	...	5	...	...	...	...	...	1	...	...	...
Winona, Minn.	do	20,830	4	...	...	...	...	...	...	...	...	...	...	...	...
Woburn, Mass.	do	14,520	9	...	2	...	...	...	...	...	...	...	...	...	...
York, Pa.	Dec. 25	41,895	...	...	...	...	...	...	...	2	...	14	...	...	...
Do	Jan. 1	...	1	...	2	...	...	1	...	...	...	38	...	...	...
Zanesville, Ohio	do	25,614	10	...	2	...	...	2	...	...	...	...	...	...	...

a Estimated population 1906. No estimate 1909.

STATISTICAL REPORTS OF MORBIDITY AND MORTALITY. STATES AND CITIES OF THE UNITED STATES (untabulated).

CALIFORNIA—*San Francisco, city and county.*—Month of October, 1909. Estimated population, 475,000. Total number of deaths, 518, including scarlet fever 1, tuberculosis 72, typhoid fever 6, whooping cough 6. Cases reported: Diphtheria 31, measles 18, scarlet fever 33, tuberculosis 132, typhoid fever 23, whooping cough 36. Month of November, 1909. Total number of deaths, 533, including diphtheria 4, tuberculosis 62, typhoid fever 7, whooping cough 2. Cases reported: Diphtheria 37, measles 42, scarlet fever 50, smallpox 4, tuberculosis 104, typhoid fever 22, whooping cough 37.

CONNECTICUT—*Stamford*.—Month of December, 1909. Estimated population, 22,000. Total number of deaths not reported. Cases reported: Diphtheria 2, measles 2, scarlet fever 18, tuberculosis 5, typhoid fever 1.

ILLINOIS—*Alton*.—Month of November, 1909. Estimated population, 22,000. Total number of deaths, 16, including diphtheria 1, tuberculosis 1, typhoid fever 1, whooping cough 1. Cases reported: Diphtheria 2, scarlet fever 1.

IOWA—*Sioux City*.—Month of December, 1909. Estimated population, 33,111. Cases of contagious diseases reported: Diphtheria 3, scarlet fever 13, smallpox 2.

MAINE—*Portland*.—Four weeks ended November 13, 1909. Population, 62,000. Total number of deaths, 96, including diphtheria 5, tuberculosis 7, typhoid fever 3. Cases reported: Diphtheria 18, typhoid fever 14.

OHIO—*Newark*.—Year 1909. Population, 18,157. Total number of deaths, 293, including diphtheria 2, tuberculosis 36, typhoid fever 5. Cases reported: Diphtheria 16, measles 5, scarlet fever 12, typhoid fever 36.

Youngstown.—Month of November, 1909. Estimated population, 65,000. Total number of deaths, 83, including measles 6, tuberculosis 9, typhoid fever 1. Cases reported: Diphtheria 10, measles 382, scarlet fever 20, tuberculosis 4, typhoid fever 12.

PENNSYLVANIA—*Altoona*.—Month of December, 1909. Estimated population, 60,000. Total number of deaths, 47, including tuberculosis 4, whooping cough 1. Cases reported: Diphtheria 11, typhoid fever 2.

SOUTH CAROLINA—*Charleston*.—Month of December, 1909. Estimated population, 57,593. Total number of deaths, 145, including diphtheria 2, measles 2, pellagra 2, tuberculosis 22, typhoid fever 1. Cases reported: Diphtheria 8, scarlet fever 1, typhoid fever 10.

UTAH.—Reports received by the state board of health for the month of November, 1909, from 27 counties having an aggregate estimated population of 346,873, show as follows: Deaths, diphtheria 5, scarlet fever 6, smallpox 2, tuberculosis 15, typhoid fever 25. Cases reported: Diphtheria 72, measles 16, scarlet fever 215, smallpox 288, tuberculosis 21 (incomplete), typhoid fever 185, whooping cough 29.

WISCONSIN.—Reports to the state board of health for the months of July, August, and September, 1909, from 59 counties show as follows: Deaths, diphtheria 43, measles 18, scarlet fever 75, tuberculosis (pulmonary) 142, typhoid fever 26, whooping cough 9. Cases reported: Diphtheria 382, measles 302, scarlet fever 722, smallpox 160, tuberculosis (pulmonary) 337, typhoid fever 225, whooping cough 241.

FOREIGN AND INSULAR.

BRAZIL.

RIO DE JANEIRO—Plague and Smallpox.

Acting Assistant Surgeon Stewart reports, December 13:

Two weeks ended December 13. Vessels inspected: November 27, British steamship *Grecian Prince* for New York, in coffee cargo, with no passengers and no change in crew personnel; December 1, British steamship *Saxon Prince* for New Orleans, with coffee, no passengers and no change in personnel; December 2, British steamship *Byron* for New York, with coffee, 23 cabin and 6 steerage passengers and no change in personnel; December 4, British steamship *Virgil* for New Orleans, with coffee, no passengers and no change in personnel; December 5, German steamship *Corrientes* for New York, with coffee, no passengers and no change in crew; and December 7, German bark *Bonn* for Mobile, with stone and sand ballast, no passengers and 10 new members of crew signed in this port.

Mortality—Plague and smallpox.—Week ended November 28. Total deaths 199. One new case each of plague and smallpox, with 1 death from plague. In São Sebastião hospital at close of week, 4 cases of smallpox and 2 of plague under treatment.

Week ended December 5. One new case of plague and 2 cases of smallpox were reported. In São Sebastião hospital at close of week, 2 cases of plague and 4 cases of smallpox under treatment.

CHINA.

HONGKONG—Inspection of Vessels.

Acting Assistant Surgeon Hough reports, November 28: Week ended November 20. Quarantine restrictions enforced by and against Hongkong remain as reported November 13.

Aliens for Honolulu and Pacific coast ports.—Examined 38; rejected 15.

Aliens for Philippine Islands.—Examined 7; rejected 6.

INSPECTION AND DISINFECTION OF VESSELS.

Week ended November 20.

Vessels granted bills of health.....	6
Total members of crews.....	593
Total cabin passengers.....	97
Total steerage passengers.....	23
Members of crew bathed.....	465
Steerage passengers bathed.....	27
Pieces of baggage disinfected.....	491
Vessels disinfected to kill rats.....	1
Crews' quarters disinfected:	
By formaldehyde.....	4
By sulphur.....	1

CUBA.

HABANA—Inspection of Vessels.

Acting Assistant Surgeon Villoldo reports, December 28, 1909, and January 5, 1910:

Week ended December 25, 1909.

Bills of health issued.....	17
Vessels inspected.....	16
Members of crews of outgoing vessels inspected.....	725
Passengers of outgoing vessels inspected.....	464
Certificates of inspection of hides issued.....	5

No quarantinable disease reported during the week.

Week ended January 1, 1910.

Bills of health issued.....	25
Vessels inspected.....	19
Members of crews of outgoing vessels inspected.....	856
Passengers of outgoing vessels inspected.....	7
Vaccination certificates issued.....	20
Immune certificates issued.....	3

No quarantinable disease reported.

MATANZAS—Inspection of Vessels.

Acting Assistant Surgeon Nuñez reports, December 2, 1909, and January 3, 1910:

Week ended December 25, 1909. Bill of health granted to 1 vessel for the United States. Week ended January 1, 1910. Bills of health granted to 4 vessels for the United States.

No quarantinable disease was reported. For the period from December 10 to 20 the department of sanitation reported the inspection of 3,370 houses; from December 11 to 31, 2,497 houses inspected.

SANTIAGO—Inspection of Vessels.

Acting Assistant Surgeon Wilson reports, December 30:

Week ended December 25. Bills of health issued to 4 vessels bound for the United States. No new case of quarantinable disease reported. One death from leprosy reported.

The sanitary department reports that 2,627 houses were inspected.

GERMANY.

BERLIN—Status of Cholera in East Prussia.

The following information has been received from the American embassy at Berlin, through the Department of State:

December 4. Two cases of cholera have been officially reported in the district of Heydekrug since November 19.

December 30. The imperial health office states that as no further cases of cholera have been reported and as during the 5 days following the isolation of the last case of cholera neither a death from cholera nor a new case of that disease has occurred and all proper measures of disinfection have been taken, according to article 9 of the international agreement of December 3, 1903, the districts attacked by the disease may be considered now no longer infected.

HAWAII.

HONOLULU—Plague-prevention work.

Chief Quarantine Officer Hobdy reports, December 13:

The last case of human plague at Honolulu occurred July 17, 1907. The last plague-infected rat was found at Aiea, 9 miles from Honolulu, August 22, 1907.

Week ended December 11.

Total rats taken	525
Trapped	517
Found dead	1
Shot from trees	7
Examined bacteriologically	402
Plague rats	0
Classification of rats trapped:	
<i>Mus alexandrinus</i>	65
<i>Mus musculus</i>	180
<i>Mus norvegicus</i>	91
<i>Mus rattus</i>	181
Classification of rats shot from trees:	
<i>Mus alexandrinus</i>	4
<i>Mus rattus</i>	3
Average number of traps set daily	1, 294

Week ended December 18.

Total rats taken	588
Trapped	518
Found dead	0
Shot from trees	70
Examined bacteriologically	436
Plague rats	0
Classification of rats trapped:	
<i>Mus alexandrinus</i>	60
<i>Mus musculus</i>	213
<i>Mus norvegicus</i>	69
<i>Mus rattus</i>	176
Classification of rats shot from trees:	
<i>Mus alexandrinus</i>	11
<i>Mus rattus</i>	52
Average number of traps set daily	1, 294

HILO.

Last case of human plague occurred at Papeekeeo, Hilo, October 4, 1909.

Last plague-infected rat was found at Hilo December 6, 1909.

A rat referred from Hilo to the plague laboratory at Honolulu during the week ended December 11 was found during the following week to be infected with plague.

INDIA.

CALCUTTA—Cholera, Plague, and Smallpox.

Acting Assistant Surgeon Allan reports, December 9:

Week ended November 27. In Calcutta there were 23 deaths from cholera and 5 from plague; in all Bengal, 24 cases of plague with 190 deaths; in all India, 4,694 cases of plague with 3,754 deaths.

Week ended December 4. Bills of health issued to: Steamships *Bloemfontaine* for Boston and New York with a total crew of 66, *Royal Prince* for Philadelphia and New York with a total crew of 41, and *Barendrecht* for Boston and New York with a total crew of 27. The usual precautions were taken, holds fumigated, rat guards placed on wharf lines, and effects of Asiatics disinfected.

ITALY.

NAPLES—Examination of Emigrants—Smallpox.

Surgeon Geddings reports, December 20:

Vessels inspected at Naples week ended December 18.

Date.	Name of ship.	Destination.	Steerage passengers inspected and passed.	Pieces of baggage inspected and passed.	Pieces of baggage disinfected.
Dec. 14	Manhattan.....	New York.....			
14	Dinnamare.....	do.....			
15	Madonna.....	do.....	264	65	380
18	Cedric.....	do.....	695	130	750
	Total.....		959	195	1,130

REJECTIONS RECOMMENDED.

Date.	Name of ship.	Trachoma.	Favus.	Suspected trachoma.	Other causes.	Total.
Dec. 14	Manhattan.....					
14	Dinnamare.....					
15	Madonna.....	7	2	2	1	12
18	Cedric.....	15	1	5	5	26
	Total.....	22	3	7	6	38

Smallpox in Naples.—During the week ended December 19, 21 cases of smallpox with 2 deaths were reported at the health office of the city of Naples.

JAPAN.

YOKOHAMA—Examination of Emigrants.

Passed Assistant Surgeon Cumming reports, November 30 and December 11:

Number of emigrants per steamship *Tenyo Maru* November 30 for San Francisco via Honolulu: For Honolulu rejected 1; held 2; for San Francisco held 4. Total number examined 44.

Per steamship *Korea* for San Francisco via Honolulu December 11: For Honolulu rejected 1; held 2. Total number examined 1.

Per steamship *Kumano Maru* for Manila December 11: Rejected 2; held 7. Total number examined 4.

KOBE—Plague.

Consul Scidmore reports, November 18:

The epidemic of plague at this port shows no abatement. From October 18 to date there have been 94 new cases with 74 deaths. Since August 31, the date of the outbreak, there have been 154 cases with 117 deaths.

NAGASAKI—Examination of Emigrants.

Sanitary Inspector Bowie reports:

Seven emigrants for San Francisco and Honolulu per steamship *Tenyo Maru* examined and passed November 24. During the month of November, 1909, 8 emigrants for the Philippine Islands were examined and passed.

December 4. Eleven emigrants for Hawaii per steamship *Korea* examined; 3 held. Four emigrants for San Francisco examined and passed.

Health conditions at Nagasaki are good.

MEXICO.

Report from the Superior Board of Health of Mexico.

In compliance with articles 1 and 2 of the international sanitary convention held at Washington October 14, 1905, the acting president of the Superior Board of Health of Mexico reports for the week ended December 25 that 2 cases of yellow fever were registered in the Mexican Republic December 20, 1 at the city of Merida and 1 at Santa Cruz de Bravo, Quintana Roo, Yucatan, with 2 deaths from the said disease occurring December 20 and 21 at Santa Cruz and Merida, respectively, and that the prophylactic measures against yellow fever ordered September 28, 1908, continue to be carried out.

Week ended January 1, 1910. No case of yellow fever and no death from the said disease were registered in the Mexican Republic. Prophylactic measures continue to be carried out.

COATZACOALCOS—Inspection of Vessels.

Acting Assistant Surgeon Thompson reports, December 23 and 30:

Week ended December 22. Vessels inspected: December 16, steamship *William Cliff* for a port in the United States via Veracruz and Tampico; December 17, steamship *Bornu* for Newport News via Tampico, Veracruz, and Progreso; December 21, steamship *City of Tampico* for Texas City via Veracruz and Tampico.

Week ended December 29. Vessels inspected: Steamship *Calabria* for Norfolk; December 26, steamship *Massachusetts* for New York; December 26, steamship *Cayo Soto* for a port in the United States via Veracruz and Tampico; December 27, steamship *Montserrat* for New York via Veracruz and Habana; December 29, steamships *Hawaiian* for New York and *Catalina* for New Orleans.

No quarantinable disease reported.

PARAGUAY.

Fatal Plague Cases.

[From the Veröffentlichungen des Kaiserlichen Gesundheitsamtes, Berlin, December 22, 1909.]

Thirty deaths from plague were reported, December 10, from the northern part of Paraguay.

PERU.

CALLAO—Yellow Fever—Smallpox—Plague.

Acting Assistant Surgeon Castro-Gutierrez reports, December 12:

On November 28 a case of yellow fever was found at the Guadalupe Hospital. The case terminated fatally December 2. It was learned that the patient came from Guayaquil on the steamship *Loa* and that he had traveled in the coal bunkers as a stowaway. He was sick when he embarked, and he disembarked the day after the arrival of the vessel at Callao. Precautions were at once taken to prevent the spread of the disease.

A few cases of smallpox have recently occurred in Callao and a case of leprosy was landed from the steamship *Mexico*. The patient had lately returned from Asiatic ports.

The following report on the status of plague in Peru is received from the director of health:

Locality.	Cases Oct. 22.	New.	Recov- ered.	Died.	Remain- ing Nov. 18.
Lima.....	5	3	3	1	4
Libertad.....	4		2		2
Lambayeque.....	6	13	1	1	17
Arequipa.....	1		1		

At Lambayeque, from October 1 to 21, 14 new cases of plague with 8 deaths were reported.

Inspection of vessels.—Week ended November 20. Two vessels, with 14 in crew and 74 cabin and 67 steerage passengers, were fumigated. Week ended November 27. Two vessels, with 161 in crew and 33 cabin and 10 steerage passengers, fumigated. Week ended December 4. Two vessels, with 202 in crew and 83 cabin and 183 steerage passengers, fumigated.

RUSSIA.

ST. PETERSBURG—Status of Cholera.

The following information, dated December 15, was received through the Department of State under date of December 30:

A communication from the minister of foreign affairs states that during the period from November 28 to December 4 there were 71 cases of cholera in Russia, with 38 deaths, occurring as follows:

Cities and governments.	Cases.	Deaths.
St. Petersburg.....	8	2
Baku.....	7	7
Governments:		
St. Petersburg.....	3	3
Baku.....	6	5
Kursk.....	3	
Ekaterinislav.....	9	4
Taurida.....	33	16
Territory of the Don.....	2	1
Total.....	71	38

A further communication of December 18 states that during the period from December 5 to 11 there were 79 cases of cholera with 32 deaths in Russia, occurring as follows:

Cities and governments.	Cases.	Deaths.
St. Petersburg.....	14	2
Moscow.....	32	16
Baku.....	6	1
Governments:		
St. Petersburg.....	2	1
Ekaterinislav.....	11	9
Taurida.....	12	2
Territory of the Don.....	2	1
	79	32

LIBAU—Plague—Examination of Emigrants.

Acting Assistant Surgeon De Forest reports, December 19:

Week ended December 16. Plague was reported in Russia as follows: Beiskulak, vicinity of Astrakhan, 18 cases, 16 deaths; village 50 miles south of Beiskulak, 14 cases, 13 deaths; Ural district, 80 miles from Uralsk, 23 deaths; Libau, 1 case, 1 death.

Examination of emigrants.—The steamship *Russia* sailed from Libau December 14 for New York with a crew of 131 members and 513 passengers, all of whom had been in Libau for the required five days under observation. One hundred and forth-three pieces of baggage were disinfected. The steamship *Korea* sailed from Libau for Philadelphia via Norway; crew 46; no passengers or cargo. The steamship *Estonia* sailed December 2 for New York.

MOSCOW—Cholera Outbreak.

The following was received from Consul-General Snodgrass, under date of December 15:

Cholera is epidemic in Moscow. It is believed that the disease was brought from St. Petersburg by members of the beggar class and the disease is restricted to the quarter inhabited by this class. The number of cases present December 15 is 48, with 8 deaths during the past 24 hours. Fifty-nine suspect cases are under observation, making a total of 107 cases under treatment at the hospitals.

VENEZUELA.**LA GUAIRA—Inspection of Vessels.**

Acting Assistant Surgeon Kellogg reports, December 19:

Week ended December 18. Vessels inspected: December 13, steamship *Maracaibo*, with 51 in crew and 2 passengers in transit, for New York. December 15, steamship *Caracas*, with 70 in crew and 10 passengers taken on at this port, for Porto Rico and New York. December 18, steamship *A. Lopez*, with 127 in crew and 39 passengers in transit and 17 taken on at this port, for San Juan, P. R. Nineteen pieces of baggage were inspected and 1 piece was disinfected.

No quarantinable disease is reported in La Guaira or vicinity, or at Puerto Cabello.

ZANZIBAR.**ZANZIBAR—Plague-prevention Work.**

Consul Garrels reports, November 17 and 28:

Two weeks ended November 21, 1909. Number of rats examined, 2,322. No plague-infected rat was found.

The last case of human plague was reported November 8.

CHOLERA, YELLOW FEVER, PLAGUE, AND SMALLPOX.

Reports Received During Week Ended January 14, 1910.

[These tables include cases and deaths recorded in reports received by the Surgeon-General, Public Health and Marine-Hospital Service, from American consuls through the Department of State and from other sources.]

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
Batavia:				
Java.....	Nov. 14-20.....	200	30	Nov. 19, one case on s. s. Königen Wilhelmina en route to Suez.
Germany:				
Heydekrug.....	Nov. 19-Dec. 4....	2		
India:				
Bombay.....	Nov. 8-14.....		1	
Rangoon.....	Nov. 21-Dec. 4....		9	
Persia:				
Astara.....	Dec. 1-4.....	13	8	
Russia, general.....	Nov. 28-Dec. 11...	150	70	
Baku, government.....	Nov. 28-Dec. 11...	6	5	
Baku.....	Nov. 28-Dec. 11...	13	8	
Don territory.....	Nov. 28-Dec. 11...	4	2	
Ekaterinislav, government.....	Nov. 28-Dec. 11...	9	4	
Kursk, government.....	Nov. 28-Dec. 11...	3		
Moscow, government—				
Moscow.....	Nov. 29-Dec. 11...	85	41	
St. Petersburg, government.....	Nov. 28-Dec. 11...	5	4	
St. Petersburg.....	Nov. 28-Dec. 11...	22	4	
Taurida, government.....	Nov. 28-Dec. 11...	45	18	
Turkey in Asia:				
Trebizond.....	Nov. 28.....	a 1		On a vessel from Batum.

YELLOW FEVER.

Brazil:				
Manaos.....	Dec. 5-11.....		1	
Para.....	Dec. 12-18.....	3	3	
Ecuador:				
Guayaquil.....	Dec. 1-15.....	12	5	
Peru:				
Callao.....	Nov. 2-Dec. 2....	1	1	From s. s. Loa.
Mexico:				
Yucatan—				
Merida.....	Dec. 20-21.....	1	1	
Santa Cruz de Bravo.....	Dec. 20.....	1	1	
Trinidad:				
Port of Spain.....	Nov. 28-Dec. 4....	1	1	

PLAGUE.

Brazil:				
Bahia.....	Nov. 20-26.....	2	1	
Para.....	Dec. 12-18.....	3	2	
Rio de Janeiro.....	Nov. 22-Dec. 5....	2	1	
Ecuador:				
Guayaquil.....	Dec. 1-15.....	60	23	
Egypt:				
Provinces—				
Assiout.....	Nov. 10-16.....	1		
Beherach.....	Dec. 8-14.....	1		
Indo-China:				
Saigon.....	Nov. 7-13.....	1		
Paraguay.....	Dec. 10.....		b 30	In the northern part.
Peru:				
Provinces—				
Lambayeque.....	Oct. 1-18.....	27	9	
Lima.....	Oct. 22-Nov. 18...	3	1	
Russia:				
Astrakhan, district.....	Dec. 10-16.....	14	13	50 miles south of Beiskulak.
Beiskulak.....	Dec. 10-16.....	18	16	
Ural, district.....	Dec. 10-16.....		23	

a From the Veröffentlichungen des Kaiserlichen Gesundheitsamtes, Dec. 15, 1909.

b From the Veröffentlichungen des Kaiserlichen Gesundheitsamtes, Dec. 22, 1909.

CHOLERA, YELLOW FEVER, PLAGUE, AND SMALLPOX—Continued.

Reports Received During Week Ended January 14, 1910.

SMALLPOX.

Place.	Date.	Cases.	Deaths.	Remarks.
Argentina:				
Buenos Aires.....	Oct. 1-31.....		2	
Brazil:				
Bahia.....	Nov. 20-26.....	18	12	
Rio de Janeiro.....	Nov. 22-Dec. 5....	3		
Sao Paulo.....	Nov. 1-21.....		2	
Canada:				
Nova Scotia—				
Halifax.....	Dec. 19-25.....	2		
Chile:				
Quillota.....	Nov. 28-Dec. 4....			Present.
Valparaiso.....	Nov. 20.....			Do.
China:				
Shanghai.....	Nov. 22-28.....		1	Among Chinese.
Egypt, general.....	Nov. 19-25.....	34	13	
Alexandria.....	Nov. 19-25.....		4	
Cairo.....	Dec. 3-9.....	2		
France:				
Paris.....	Dec. 12-18.....	9		
Germany, general.....	Dec. 12-18.....	3		
Great Britain:				
Plymouth.....	Nov. 12-18.....		1	
Southampton.....	Nov. 12-18.....	1		
Greece:				
Athens.....	Nov. 22-Dec. 4....		7	
India:				
Bombay.....	Dec. 8-14.....		6	
Rangoon.....	Nov. 21-27.....		6	
Indo-China:				
Saigon.....	Dec. 7-13.....	1		
Italy, general.....	Dec. 13-19.....	35		
Genoa.....	Dec. 1-15.....	1		
Naples.....	Dec. 13-19.....	21	2	
Mexico:				
Aguascalientes.....	Dec. 12-25.....		3	
Chihuahua.....	Dec. 20-26.....	2	1	
Persia:				
Hamadan.....	Nov. 15.....			Present.
Sultanabad.....	Nov. 15.....			Do.
Peru:				
Callao.....	Dec. 6-12.....			Do.
Portugal:				
Lisbon.....	Dec. 12-18.....	13		
Porto Rico, general.....	July 1-Oct. 31....	38	12	
Russia:				
Libau.....	Dec. 6-12.....	4		
Moscow.....	Nov. 28-Dec. 11...	13	2	
Odessa.....	Dec. 5-11.....	4		
Riga.....	Dec. 5-11.....	2		
St. Petersburg.....	Dec. 5-11.....	41	19	
Warsaw.....	Oct. 24-30.....		10	
Spain:				
Barcelona.....	Dec. 14-26.....		4	
Huelva.....	Nov. 1-30.....		11	
Tripoli:				
Tripoli.....	Nov. 14-Dec. 11...	237	23	
Turkey in Asia:				
Bagdad.....	Nov. 21-27.....			Do.
Smyrna.....	Nov. 5-Dec. 1.....		31	
Uruguay:				
Montevideo.....	Oct. 1-31.....		7	

CHOLERA, YELLOW FEVER, PLAGUE, AND SMALLPOX—Continued.

Reports Received from January 1 to January 7, 1910.

[For reports received from June 25, 1909, to December 31, 1909, see PUBLIC HEALTH REPORTS for December 31, 1909. In accordance with custom, the tables of epidemic diseases are terminated semiannually and new tables begun.]

CHOLERA.

Place.	Date.	Cases.	Deaths.	Remarks.
Germany:				
Niederung.....	Nov. 16-22.....	1		
India:				
Bombay.....	Nov. 24-30.....		5	
Calcutta.....	Nov. 14-20.....		26	
Rangoon.....	Nov. 14-20.....		5	
Philippine Islands:				
Manila.....	Nov. 7-20.....	19	20	
Provinces—				
Albay.....	Nov. 7-20.....	6	6	
Bataan.....	Nov. 7-20.....	115	73	
Bohol.....	Nov. 7-20.....	25	14	
Bulacan.....	Nov. 7-20.....	24	19	
Camarines.....	Nov. 7-20.....	5	5	
Cavite.....	Nov. 7-20.....	61	48	
Cebu.....	Nov. 7-20.....	207	156	Nov. 20, 1 case on s. s. Yaptico.
Oriental Negros.....	Nov. 7-20.....	10	5	
Pampanga.....	Nov. 7-20.....	8	5	
Rizal.....	Nov. 7-13.....	4	3	
Tarlac.....	Nov. 7-13.....	9	5	
Russia, general.....	Nov. 21-27.....	81	35	
Baku, government.....	Nov. 21-27.....	4	3	
Baku.....	Nov. 21-27.....	10	7	
Ekaterinislav.....	Nov. 21-27.....	4	1	
Jaroslavl.....	Nov. 21-27.....		1	
Kostroma.....	Nov. 21-27.....	3	4	
Koursk.....	Nov. 21-27.....	3		
Kovna.....	Nov. 21-27.....	8	3	
Pskov.....	Nov. 21-27.....	10		
St. Petersburg, government.....	Nov. 21-27.....	9	6	
St. Petersburg.....	Nov. 21-27.....	14	6	
Taurida.....	Nov. 21-27.....	14	4	
Vitebsk.....	Nov. 21-27.....	2		

YELLOW FEVER.

Brazil:			
Manaos.....	Nov. 21-Dec. 4.....		2
Para.....	Nov. 28-Dec. 11.....	4	4

PLAGUE.

Brazil:			
Para.....	Nov. 28-Dec. 11.....	7	5
Pernambuco.....	Oct. 15-31.....		3
Rio de Janeiro.....	Nov. 2-21.....	7	1
China:			
Hongkong.....	Nov. 21-27.....	1	1
Egypt:			
Alexandria.....	Nov. 19-29.....	4	4
Provinces—			
Assiout.....	Sept. 29-Dec. 7.....	7	2
Menouf.....	Nov. 28-Dec. 5.....	14	4
India:			
Bombay Presidency and Sind.....	Nov. 7-13.....	993	647
Madras Presidency.....	Nov. 7-13.....	112	91
Bengal.....	Nov. 7-13.....	282	202
United provinces.....	Nov. 7-13.....	1,323	1,122
Punjab.....	Nov. 7-13.....	633	460
Burma.....	Nov. 7-13.....	26	22
Central provinces, including Berar.....	Nov. 7-13.....	789	677
Mysore State.....	Nov. 7-13.....	199	145
Hyderabad State.....	Nov. 7-13.....	27	21
Central India.....	Nov. 7-13.....	177	141
Rajputana and Ajmer-Merwara.....	Nov. 7-13.....	429	362
Kashmir.....	Nov. 7-13.....	12	11
Grand total.....		5,002	3,901

CHOLERA, YELLOW FEVER, PLAGUE, AND SMALLPOX—Continued.

Reports Received from January 1 to January 7, 1910.

PLAGUE—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Japan:				
Kobe.....	Nov. 28-Dec. 4....	6	5	
Russia:				
Libau.....	Dec. 3-9.....	1	1	
Turkey:				
Alexandretta.....	Dec. 1.....		3	
Beirut.....	Nov. 27-28.....	2		

SMALLPOX.

Algeria:				
Algiers.....	Nov. 1-30.....		1	
Brazil:				
Pernambuco.....	Oct. 16-30.....		32	
Rio de Janeiro.....	Nov. 2-21.....	8		
China:				
Shanghai.....	Nov. 1-6.....		1	
Cuba:				
Baracoa.....	Dec. 5-11.....	1		
Habana.....	Dec. 3-9.....	1		
Egypt, general.....	Nov. 5-18.....	66	29	
Cairo.....	Nov. 26-Dec. 2.....	3	1	
Germany, general.....	Dec. 5-11.....	1		
Great Britain:				
London.....	Nov. 28-Dec. 13.....	4		
France:				
Paris.....	Dec. 5-11.....	5		
India:				
Bombay.....	Nov. 24-30.....		3	
Calcutta.....	Nov. 14-20.....		1	
Italy, general.....	Nov. 29-Dec. 12.....	67		
Naples.....	Dec. 6-12.....	10	2	
Mexico:				
Chihuahua.....	Dec. 13-19.....		1	
Mexico.....	Nov. 14-27.....		6	
Monterey.....	Dec. 13-19.....		1	
Netherlands:				
Rotterdam.....	Dec. 5-11.....	7		
Philippine Islands:				
Manila.....	Nov. 14-20.....	2		
Portugal:				
Lisbon.....	Dec. 5-11.....	15		
Russia:				
Moscow.....	Nov. 21-27.....	3		
Odessa.....	Nov. 21-Dec. 4.....	22	10	
St. Petersburg.....	Nov. 28-Dec. 4.....	4	12	

From s. s. La Navarre.

MORTALITY.

WEEKLY MORTALITY TABLE, FOREIGN AND INSULAR CITIES.

[illegible]

MORTALITY—Continued.

Weekly mortality table, foreign and insular cities—Continued.

Cities.	Week ended—	Estimated population.	Total deaths from all causes.	Deaths from—										
				Tuberculosis.	Plague.	Cholera.	Yellow fever.	Smallpox.	Typhus fever.	Enteric fever.	Scarlet fever.	Diphtheria.	Measles.	Whooping cough.
Matamoras	Dec. 18		7	12										
Do	Dec. 25		39	1										
Milan	Dec. 12	900,000	39	38									1	16
Moscow	Dec. 4	1,500,000	748	90		4		1	12	10	46	39	12	16
Do	Dec. 11		762	98		37		1	12	10	55	19	19	8
Mantes	Dec. 19	161,908	64	14						1		1		
Naples	Dec. 18	593,729	312					12						
Newcastle-on-Tyne	do	281,584	76								2			1
Nottingham	Dec. 11	200,000	93							1	1			
Odessa	do	520,000	228	27						6	18	10	2	
Para	Dec. 18	185,000	79	7	2		3							
Paris	do	2,776,394	962	182						9		10	4	3
Penang	Nov. 27	102,520	70	17						1				
Plymouth	Dec. 18	124,180	43					1			1			1
Port Elizabeth	Dec. 4	32,525	17											
Port of Spain	do	60,000	39	4			1			1				
Do	Dec. 11		44	8						3				
Do	Dec. 18		30	3										
Quebec	Jan. 1	81,000										3		
Riga	Dec. 11	355,000												
Rotterdam	Dec. 18	416,910	122							1		2		
Saigon	Nov. 13	206,000	2											
St. Johns, N. B.	Jan. 1	40,711	10	3										
St. Petersburg	Dec. 11	1,678,000	717	117		2		19		4	19	23	38	12
Salaverry	Dec. 15	1,750										1		
Santa Cruz de Tenerife	Dec. 11	46,000	17	2								1		
Santiago de Cuba	Dec. 25	53,614	17											
Schiedam	Dec. 11	31,893	8	1										
Do	Dec. 18		10											
Shanghai	Nov. 28	565,000	140	14				1				1		
Singapore	Nov. 27	271,000	33											
Smyrna	Nov. 11	400,000	113	19				6		5				
Do	Nov. 18		94	16				11		2				
Do	Nov. 25		78	12				9		1				
Do	Dec. 1		103	11				5		3				
Southampton	Dec. 18	124,667	31	3										
Stockholm	Dec. 4	339,582	86	17								1	1	2
Tarragona	Dec. 18	20,400	9	3										
Tegucigalpa	Dec. 4	24,000	9											
Tripoli	Nov. 20	42,000	72	2				1						
Do	Nov. 27		1					2						
Do	Dec. 4		2					12		2				
Do	Dec. 11		1					8						
Turin	Dec. 2	381,439	143	14										
Do	Dec. 9		143	18										
Valencia	Dec. 11	240,000	85	7						1	1	1		
Victoria	Dec. 25	35,000	5							2		2		
Vienna	Dec. 11	2,085,888	615	88								1		
Vigo	Dec. 4	40,000	8							1	5	10	3	3
Do	Dec. 11		14	2										

MORTALITY—FOREIGN AND INSULAR—COUNTRIES AND CITIES (untabulated).

ALGERIA—*Algiers*.—Month of November, 1909. Estimated population 155,000. Total number of deaths 295, including diphtheria 1, smallpox 1, tuberculosis 65, typhoid fever 3, whooping cough 2.

Bona.—Month of November, 1909. Estimated population 42,000. Total number of deaths 104, including smallpox 2, tuberculosis 12, typhoid fever 2, typhus fever 1, whooping cough 1.

ARGENTINA—*Buenos Aires*.—Month of October, 1909. Estimated population 1,222,654. Total number of deaths not reported. Deaths from contagious diseases reported: Diphtheria 3, measles 8, scarlet fever 5, smallpox 2, tuberculosis 173, typhoid fever 8, whooping cough 10.

AUSTRALIA—*Sydney*.—Month of October, 1909. Estimated population 592,100. Total number of deaths 423, including diphtheria 7, measles 1, tuberculosis 26, typhoid fever 2.

CANADA—*Ontario—Niagara Falls*.—Month of December, 1909. Estimated population 9,000. Total number of deaths 8. No deaths from contagious diseases.

Quebec—*Sherbrooke*.—Month of December, 1909. Estimated population 15,300. Total number of deaths 19, including tuberculosis 2.

CUBA—*Matanzas*.—Ten days ended November 10, 1909. Estimated population, 36,009. Total number of deaths 13, including tuberculosis 3.

CURAÇAO.—Two weeks ended December 17. Estimated population, 30,000. Total number of deaths 17. No contagious diseases.

DUTCH GUIANA—*Paramaribo*.—Month of November, 1909. Total number of deaths, 108. No contagious diseases.

FRANCE—*Marseille*.—Month of November, 1909. Estimated population, 517,498. Total number of deaths 832, including diphtheria 3, measles 1, scarlet fever 4, tuberculosis 118, typhoid fever 17.

GREAT BRITAIN AND IRELAND.—Week ended December 11, 1909.

England and Wales.—The deaths registered in 76 great towns correspond to an annual rate of 16.6 per 1,000 of the population, which is estimated at 16,445,281.

Ireland.—The deaths registered in 21 principal town districts correspond to an annual rate of 23.2 per 1,000 of the aggregate population, which is estimated at 1,142,830. The lowest rate was recorded at Clonmel, viz, 5.1, and the highest at Ballymena, viz, 38.3, per 1,000 of the population.

Scotland.—The deaths registered in 8 principal towns, having an aggregate estimated population of 1,865,571, show a total of 851, including diphtheria 14, measles 64, scarlet fever 8, typhoid fever 79 (Glasgow), whooping cough 16.

GREECE—*Patras*.—Two weeks ended December 15, 1909. Estimated population, 40,000. Total number of deaths 15, including diphtheria 1, tuberculosis 4.

ITALY—*Genoa*.—Two weeks ended November 30, 1909. Population, 279,163. Total number of deaths 203, including tuberculosis 18.

Two weeks ended December 15, 1909. Total number of deaths 257, including diphtheria 3, tuberculosis 25, typhoid fever 9.

MALTA.—Month of November, 1909. Estimated population, 212,888. Total number of deaths 369, including diphtheria 1, Mediterranean fever 3, tuberculosis 21, typhoid fever 1.

NEW ZEALAND—*Auckland*.—Month of October, 1909. Estimated population, 42,748. Total number of deaths 49, including diphtheria 3, tuberculosis 5.

Christchurch.—Month of October, 1909. Estimated population, 76,709. Total number of deaths 46, including whooping cough 2, tuberculosis 1.

Dunedin.—Month of October, 1909. Estimated population, 61,279. Total number of deaths 57, including measles 1, tuberculosis 1.

Wellington.—Month of October, 1909. Estimated population, 73,667. Total number of deaths 51, including scarlet fever 1, tuberculosis 6, typhoid fever 1.

PORTO RICO.—Month of July, 1909. Estimated population, 1,053,963. Total number of deaths 225, including diphtheria 2, measles 5, tuberculosis 199, typhoid fever 16.

Month of August, 1909. Total number of deaths 218, including measles 4, tuberculosis 189, typhoid fever 23.

Month of September, 1909. Total number of deaths 184, including diphtheria 3, measles 2, smallpox 10, tuberculosis 151, typhoid fever 17.

Month of October, 1909. Total number of deaths 240, including diphtheria 2, measles 8, smallpox 2, tuberculosis 218, typhoid fever 9.

SOUTH AFRICA—*Kimberley*.—Month of November, 1909. Estimated population, 44,141. Total number of deaths 87. No deaths from contagious diseases.

Johannesburg.—Two weeks ended October 30, 1909. Population, 180,687. Total number of deaths 155, including measles 2, tuberculosis 23, typhoid fever 2, whooping cough 3.

Two weeks ended November 13, 1909. Total number of deaths 152, including measles 3, scarlet fever 3, tuberculosis 18, typhoid fever 3, whooping cough 2.

SPAIN—*Huelva*.—Month of November, 1909. Estimated population, 24,000. Total number of deaths 88, including smallpox 11, tuberculosis 15.

TAHITI.—Five weeks ended December 4, 1909. Estimated population, 4,000. Total number of deaths 7. No deaths from contagious diseases.

TURKS ISLANDS.—Eight weeks ended December 18, 1909. Estimated population, 1,600. Total number of deaths 7, including tuberculosis 2.

URUGUAY—*Montevideo*.—Month of October, 1909. Estimated population, 319,055. Total number of deaths 452, including diphtheria 2, scarlet fever 5, smallpox 7, tuberculosis 74, typhoid fever 1.

By authority of the Secretary of the Treasury:

WALTER WYMAN,

Surgeon-General,

United States Public Health and Marine-Hospital Service.

